

## LONG DISTANCE CORRIDOR WALK

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## LONG DISTANCE CORRIDOR WALK

### 1. Background and Rationale

The Health ABC long distance corridor walk (LDCW) is a two-stage walking-based test of exercise tolerance and fitness level. The first stage consists of a 2-minute walk where participants are instructed to cover as much ground as they can at a pace they can maintain. The second stage consists of the 400-meter walk, which follows after a 30 second pause to get the pulse rate. For the 400-meter walk, participants are instructed to complete the distance as quickly as they can at a pace they can maintain for 10 laps. Encouragement is given in a standardized fashion every lap for both walks. For both stages of the walk, heart rate is monitored and recorded at set intervals. Standing blood pressure and radial pulse (taken during the blood pressure and radial pulse measurement earlier in the clinic visit) is reviewed before the 2-minute walk and is measured after the 400-meter walk.

### 2. Equipment and Supplies

- Heart rate monitor
- Two fluorescent orange traffic cones
- White cloth tape
- 10 cm-length tape to mark every meter between cones
- Digital stop-watch
- Conventional mercury sphygmomanometer\*
- Blood pressure cuffs (small, regular, large and thigh cuffs)\*
- Stethoscope: standard stethoscope and ear pieces with bell, tubing to be maximum of 14 inches long\*

\*See Blood Pressure chapter for maintenance of Blood Pressure equipment

#### 2.1 Use of the Stopwatch



Below are descriptions of two timing modes that you will use during the long-distance corridor walk. One is simply a measure of the time it takes to complete one task. The other mode is the split-time mode in which two times are recorded during the same test.

1) Measuring the time it takes to complete a task from the beginning of the activity until the conclusion: Press the middle (mode) button to make sure you are in stopwatch mode. The display should read **0:0000**. If display is not at **0:0000**, press the left-hand, LAP button, until the display reads **0:0000**. To time the task, just press the right-hand button (labeled STA/STP) at the top of the stopwatch to begin, and press again when the task is completed. The time is digitally displayed on the stopwatch. To get the display to read **0:0000** again, press the left (LAP) button.

2) The second mode is the split-time mode in which two times are recorded during the same test. This mode will be used for the 2-minute walk.

- At the start of the task, in this case the 2-minute walk, press the STA/STP button on the right.
- After the first part of the task is completed, in this case, after the first 20 meters are walked, press the button on the left (labeled LAP). The number on the stopwatch display will remain the same, but the timing will continue. The colon will be flashing as the timing continues.
- After you record the number of steps the participant has taken to complete the first 20 meters of the 2-minute walk, record the time displayed on the screen of the stopwatch.
- After you record the displayed number (time that it took to walk 20 m), press the LAP button on the left, to continue timing the 2-minute walk. Press the right/hand STA/STP button when 2 minutes have elapsed (display reads: **2:0000**). Press the left-hand, LAP button to set timer at **0:0000** for the next test.

## 2.2 Use of the Heart Monitor

- Wet the electrodes with water on the two grooved rectangular areas on the underside of the belt transmitter.
- Secure the belt transmitters as high under the pectoral muscles as is comfortable for the participant.
- Wear the receiver as a wrist watch.

To set the alarm rates:

- Depress the left button on the face of the watch and an arrow will appear.

- Depress the button on the right to set the higher limit. Continue to depress this button until the desired limit is displayed.
- Depress the left button and the lower limit arrow will appear.
- Depress right button until the desired lower limit is displayed.
- Depress left button to "set". Also, this will return you to time mode.

To begin using the monitor:

- Begin with display showing the time of day.
- Depress the button on the right of the watch face; heart and alarm symbols will be displayed.
- The heart symbol will begin to pulse.
- After a few seconds the heart rate is displayed.
- Be sure that alarm symbol is displayed to indicate alarms are activated.

CARE AND MAINTENANCE: belt transmitter will automatically activate when secured around the chest with electrodes properly wetted. The transmitter will shut off automatically when removed. Clean with mild soap and water between participants to remove perspiration residue. Do not use any other cleaning solution as damage to the unit may occur.

### **3. Safety Issues and Exclusions**

If there is a borderline or unclear answer to an exclusion question the final decision to test or not to test should be determined by the medical supervisor at each clinic. For participant safety, the presence of any of the following conditions are cause for exclusion from both walks:

#### **3.1 Conditions determined by:**

##### **3.1.1 Direct questioning:**

1. Myocardial infarction, angioplasty, or heart surgery within the past 3 months
2. New or worsening symptoms of chest pain, shortness of breath, fainting, or angina during the past 3 months

##### **3.1.2 Abnormal Marquette reading from baseline:**

Before administering the long-distance corridor walk, check the participant's Health ABC Data from Prior Visits Form to see if the Marquette reading from baseline was categorized with one of the abnormalities below.

**Exclusions:**

- Wolff-Parkinson-White (WPW) or ventricular pre-excitation
- Idioventricular rhythm
- Ventricular tachycardia
- Third degree or complete A-V block
- Any statement including reference to acute injury or acute ischemia, or marked T-wave abnormality

**3.1.3 Assessment at the start of this exam:**

Please refer to the Long Distance Corridor Walk Eligibility Assessment Form to see the standing blood pressure and radial pulse data that was collected earlier in the clinic visit. The exclusion criteria are listed below:

1. SBP > 199 mmHg
2. DBP > 109 mmHg
3. Heart rate < 40 bpm
4. Heart rate > 110 bpm

See if the participant uses a walking aid, such as a cane. If they do, mark the “yes” box on Question 3 of the the Long Distance Corridor Walk Eligibility Assessment Form and do not administer the long distance corridor walk. However, if a blind participant uses a white cane and is not walking disabled, they are eligible for the long-distance corridor walk. If the participant uses a white cane for blindness and is not walking disabled, when answering Question 3 on the Long-Distance Corridor Eligibility Assessment Form, check the “no” box and administer the long distance corridor walk.

**3.1.4 Assessment during/after the 2-minute walk:**

1. Heart rate < 40 bpm
2. Heart rate > 135 bpm
3. Participant report of chest pain, tightness, or pressure; shortness of breath, feeling lightheaded, dizzy, or faint; or experiencing leg pain during the 2-minute walk.

**3.2 Stopping rules during testing**

These stopping criteria apply to both the 2-minute and 400-meter walks. Stopping rule invoked during the 2-minute walk precludes attempting the 400-meter walk. If possible, the test should **not** be stopped cold. The participant should be told to slow down, and the examiner should quickly approach and meet them, check the pulse monitor, and record the heart rate, time, distance, and blood pressure. If necessary, bring a chair to the participant. (See general clinic safety section.) Always indicate on

the line below “Other” on the “Stop Values” section of the Long-Distance Corridor Walk Data Collection Form (Year 2 Clinic Visit Workbook) which test (2-minute or 400-meter) was stopped. Also check the appropriate box indicating the reason the test was stopped. If, after the 2-minute walk a participant is excluded from doing the 400-meter walk for a reason other than having a heart rate greater than 135, record “00” in category 1b. under 400 m Walk [second column] of the Long Distance Corridor Walk Data Collection Form in answer to “Number of laps completed:” and “000” in 1c. (meters). Fill out section i and ii under Stop Values, checking (i) the reason that the 400-meter test was not administered and (ii) that the 400-meter was stopped.

### 3.2.1 Objective criteria assessed by examiner

1. Heart rate falls below 40 bpm
2. Heart rate rises above 135 bpm (Note: during the 2-minute walk if the heart rate goes above 135, let the participant rest for 5 minutes. Then restart the test. The first 20-meter step count and split-time measurements do not have to be repeated during the second trial. Indicate on the Long Distance Corridor Walk Data Collection Form that the heart rate exceeded 135. Also, use the ‘Trial 2’ lap chart to cross off the laps completed during the second trial. If the heart rate goes above 135 a second time, discontinue the test and do not go on to the 400-meter walk. Note: If the participant is not feeling well after the heart rate has exceeded 135, notify the medical supervisor immediately. Below are some suggested scripts for reassuring the participant who feels fine but has been stopped from continuing the test because their heart rate has exceeded 135 bpm.

“Even though you feel OK, the protocol requires that we stop.”

“The data we’ve collected so far will be very useful.”

### 3.2.2 Participant-initiated criteria:

Participant reports a significant degree of any of the following symptoms:

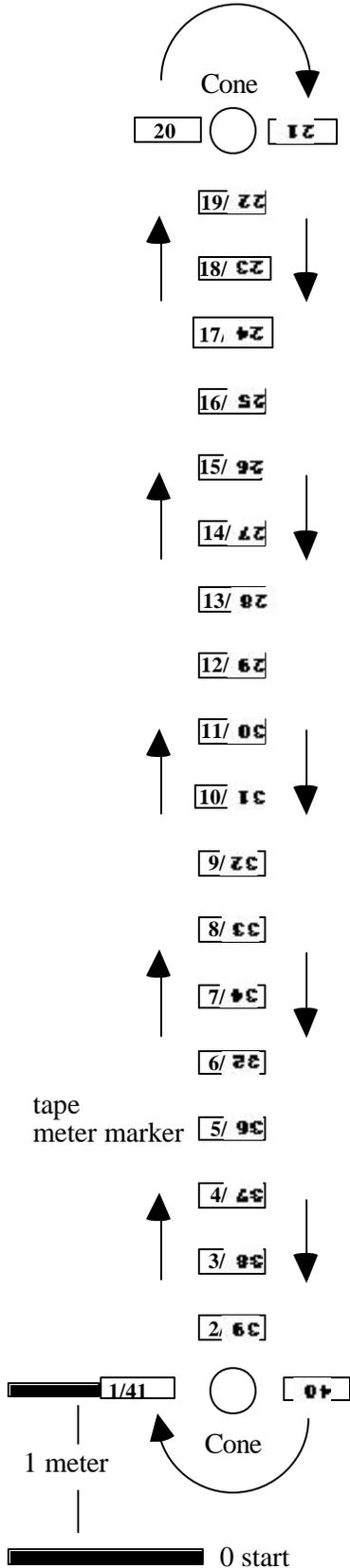
- chest pain, tightness, or pressure
- trouble breathing or shortness of breath
- feeling faint, lightheaded or dizzy
- leg pain

As noted above, if test is stopped, record heart rate, distance covered, and time. Measure the blood pressure. At any point of concern, contact the clinic supervisor to come and assess the participant.

#### 4. Participant and Exam Room Preparation

**Footwear:** To eliminate the effect of different footwear on test performance, these tests should be performed in tennis shoes or comfortable walking shoes with minimal or no heels. The participant should be instructed at the home visit and during the clinic visit reminder call to wear or bring these shoes to the clinic.

COURSE ILLUSTRATION



**Course set-up:** For consistency between centers, the walking course length will be 20 meters and should be laid out in an unobstructed, dedicated corridor. Fluorescent orange traffic cones should be used to indicate the beginning and end of the 20-meter length. Measuring from the center of each cone, place the cones 19 meters apart (to allow for a 1 meter turn at each end). Place a 1/2 meter length of white cloth tape across the floor to the left of one of the cones to mark the start of the course. Participants are to walk in the clockwise direction. Place numbered (as in course illustration) 10 cm length of tape marking every meter between the cones. The tape should be placed to the inside of the walking path, along the cone line.

## 5. Measurement Procedures

### 5.1 Overview of Testing Procedures

- 1) General description and assessment of exclusion criteria
- 2) Pre-test measurement of blood pressure and heart rate
- 3) 2-minute walk
  - a. Describe the test (make sure that all key points in script are provided).
  - b. Describe and attach heart rate monitor.
  - c. Record heart rate prior to START.
  - d. Give standard encouragement every lap and report time remaining at 1 minute 30 seconds, (30 seconds remaining), 1 minute 50 seconds (10 seconds remaining).
  - e. Record heart rate at STOP (2 minutes) within 30 seconds and return to start line to begin 400-meter walk.
- 4) 400-meter walk
  - a. Describe the test (make sure that all key points in script are provided).
  - b. Give standard encouragement every lap, and call out the number of laps completed and the number remaining.
  - c. After 400 m, record time, heart rate, and blood pressure.
  - d. Record heart rate again at 2 minutes.

### 5.2 Administration

1) Record standing blood pressure and radial pulse from the Year 2 Clinic Visit Workbook on the Long Distance Corridor Walk Eligibility Assessment Form. **If the systolic blood pressure is > 199 mmHg and/or their diastolic blood pressure is > 109 mmHg, or if the pulse is < 40 bpm or >110 bpm, do not administer the 2-minute or the 400-meter walking tests. Administer the 20-meter walk only (see item 3) below for instructions).**

2) Check to see if there were any abnormal Marquette ECG hard copy references from baseline that would preclude testing. These would include any abnormal Marquette ECG hard copy references with the exception of bradycardia, tachycardia, atrial fibrillation, or atrial flutter (new onset). If ECG was not done and the participant did not complete the 400-meter walk at baseline, do not administer the 2-minute or 400-meter walk tests

3) Give a general description of the tests.

Script: “The next tests assess your physical fitness by having you walk for 2 minutes and after that, having you walk about 1/4 mile (10 laps) at a steady pace.”

4) Ask participant the exclusion questions:

Script: “First I need to ask you a few questions to see if you should try the test.

“Within the past 3 months: Have you had a heart attack?

“ . . . have you had angioplasty?

“ . . . have you had heart surgery?”

“Within the past 3 months, have you seen a health professional or thought about seeing a health professional for new or worsening symptoms of chest pain?

“ . . . shortness of breath?

“ . . . fainting?”

“ . . . angina?”

If the answer is “yes” to any of the above questions do not administer the 2-minute or the 400-meter walking test.

5) Heart rate monitor:

With the participant seated, describe what the heart rate monitor does and why we are using it and attach it to the participant.

Script: “This device measures your pulse, or how often your heart beats.”

6) Heart rate measurement:

Obtain and record heart rate from the monitor while the participant is still seated. Obtain radial or carotid pulse by palpation if the heart rate monitor malfunctions.

7) Demonstrate how to walk around the cone using the cone at the start and describe the 2-minute walk.

Script: “This is a two-part walking test. **For the first part I would like you to walk for 2 minutes, trying to cover as much ground as possible at a pace you can maintain.** Starting at the line labeled START, walk to the cone at the other end of the hall, go around it and return, go around this cone and keep walking in the same fashion, until 2 minutes are up.

“When the 2 minutes are up I will tell you to stop. Please stay where you are so that I can record the distance you covered.”

- 8) Give the participant “stop” symptoms and final instructions.

Script: “Please tell me if you feel any chest pain, tightness or pressure in your chest, if you become short of breath or if you feel faint, lightheaded or dizzy, or if you feel leg pain. If you feel any of these symptoms, you may slow down or stop. Do you have any questions?”

- 9) Accompany participant to stand behind the starting line for the 2-minute walk.

- a. Ready stop watch.

Script: “Now let’s start the 2-minute walk. Cover as much ground as possible at a pace you can maintain. Ready, GO.”

- b. Provide standard encouragement after each lap and give time remaining.

Suggested Scripts: “Keep up the good work.” “You are doing well.” “One and a half minutes to go.”

- c. Throughout the test, draw a line through the number on the form that corresponds to each completed lap the participant walks.

When the stopwatch reads ‘1:30,’ tell the participant, “30 seconds remaining.” At 1:50, tell the participant “10 seconds remaining.” Approach the participant so that you meet them at the 2:00 stop time.

- d. When the stop watch reads 2:00, say,

Script: “STOP.”

Record heart rate, number of laps and meter mark (each meter is marked with tape on the floor. Please see diagram).

If participant is not going on to the 400-meter walk due to stopping rules, record the reason, remove heart monitor, and go on to next station. If the participant must stop during the 2-minute walk due to stopping rules, mark the box that indicates that the 2-minute walk was stopped, and record the reason on the Long Distance Corridor Walk Data Collection Form in the “Stop Value” section on the line below “Other.”

10) Accompany the participant to the starting line for the 400-meter walk.

a. Describe the 400-meter walk.

Script: “For the second part, you will be walking 10 complete laps around the course, about 1/4 mile. We would like you to walk as quickly as you can, without running, at a pace you can maintain over the 10 laps. After you complete the 10 laps I will tell you to stop, and measure your blood pressure and heart rate.”

“Start walking when I say ‘GO’ and try to complete 10 laps as quickly as you can, without running, at a pace you can maintain. Ready, Go.”

b. Start the stop watch.

c. Every lap offer standard encouragement, and call out the number of laps completed and the number remaining. Record each lap on form.

Suggested Script: “Keep up the good work.” “You are doing well.” “Looking good.” “Well done.” “Good job.”

d. When the participant completes 400-meters (10 laps, first footfall across the finish line), stop the stop watch.

e. If the participant’s heart rate exceeds 135 bpm or if they report chest pain, tightness or pressure in the chest, shortness of breath, feeling faint, lightheaded or dizzy, or report leg pain, stop the test. Record the reason on the Long Distance Corridor Walk Data Collection Form, and record in the “Stop Value” section on the line below “Other” that the 400-meter walk was stopped. Record the number of laps that were completed and the number of meters.

f. Record time and heart rate. Restart the stopwatch to time the 2 minute recovery time.

g. Assess blood pressure. **(For instructions and certification requirements necessary to take blood pressure, please refer to the blood pressure chapter of the Health ABC Operations Manual.)**

At 2 minutes, while the participant remains standing after the blood pressure assessment, record heart rate again.

11) Remove the heart rate monitor. Escort the participant to the next station.

## **6. Procedures for Performing the Measurement at Home**

Not applicable.

## **7. Alert Values/Follow-up/Reporting to Participants**

If the participant develops chest pain or other symptoms, the clinic supervisor should be notified immediately. (See clinic emergency procedure protocol.)

## **8. Quality Assurance**

### **8.1 Training Requirements**

Clinical experience with blood pressure measurement is required. Examiners must follow the training procedures for blood pressure and be certified in blood pressure measurement. Also, training should include:

- Read and study manual
- Attend Health ABC training session on techniques (or observe administration by experienced examiner)
- Practice on volunteers
- Discuss problems and questions with local expert or QC officer

### **8.2 Certification Requirements**

- Complete training requirements
- Recite ECG exclusion criteria
- Recite other exclusion criteria and stopping rules
- Conduct exam on two participants while being observed by QC officer using QC checklist

**Preparation**

- Checks for abnormal baseline ECG
- Refers to Blood Pressure recorded on eligibility assessment form (SBP>199 mmHg &/or DBP> 109 mmHg exclusion for both walks)
- Asks if participant has had a heart attack, angioplasty or heart surgery in the past 3 months
- Asks if participant has seen or thought about seeing a health professional for new or worsening symptoms of chest pain, shortness of breath, or fainting during the past 3 months
- Key points from script correct and clearly delivered for each test
- Heart rate measured properly
- Refers to radial pulse recorded before 2-minute walk (exclusion: heart rate < 40 bpm; or > 110 bpm)
- Correctly demonstrates walking the course (around the cone)
- Correctly describes the test
- Explains stop symptoms
- Reviews form for completeness

**2-Minute Corridor Walk**

- Instructs participant to walk at a pace they can maintain
- Encourages participant every lap
- If heart rate goes over 135 bpm, stops test; has participant rest and restarts test after 5 minutes. If the heart rate >135 the second time, stops test
- After 2 minutes
  - Says “Stop”
  - Records number of laps completed and meter mark
  - Records heart rate (if >135 bpm or <40 bpm→ do not go on to 400 m walk)
  - Reviews form for completeness

**400m Walk**

- Stops and clears stop watch and lap counter after 2-minute walk
- Instructs participant to start walking and to try to complete 10 laps as quickly as possible without running at a pace they can maintain for the complete course
- Standard encouragement given every lap
- After 10 laps completed:
  - Stops watch and records time and heart rate
  - Measures and records blood pressure properly

**After Testing Completed**

- Records heart rate at 2 minutes
- Removes heart monitor
- Reviews form for completeness
- Correctly completes form

**9. References**

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**11. Form**